Aortocoronary saphenous vein graft aneurysm causing high-gradient right ventricular outflow tract obstruction

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A 74-year-old man presented to our institution with worsening dyspnoea on exertion and fatigue 17 years after coronary artery bypass graft surgery (left internal mammary artery—left anterior descending, radial artery—diagonal branch, saphenous vein graft—right posterior descending, and saphenous vein graft—first obtuse marginal). A chest X-ray performed upon arrival showed a large left mediastinal density (Panel A, arrow). The echocardiographic findings included a right ventricular systolic pressure of 116 mmHg and the presence of an enormously high gradient across the right ventricular outflow tract (Panel B, and see Supplementary data online, Videos S1 and S2). Subsequently, coronary computed tomography angiography revealed a 10 × 8 cm aneurysmal dilation of the saphenous vein graft to the first obtuse marginal with extrinsic compression of the right ventricular outflow tract (Panel C, arrow; see Supplementary data online, Video S3). Previously, a catheter-based treatment approach was performed with placement of covered stents along the aneurysmal segment of the bypass graft attempting to exclude the aneurysm (Supplementary data online, Video S4). Given the development of mechanical compression of the right ventricular outflow tract by the saphenous vein graft aneurysm (Panels D and E, arrows), the patient was managed with aneurysmectomy and repeat bypass surgery.

Although the true incidence is not known, aortocoronary saphenous vein graft aneurysms are a rare phenomenon. The present clinical example demonstrates the value of multimodality imaging in order to establish the diagnosis of a saphenous vein graft aneurysm with the presence of mechanical compression and the corresponding haemodynamic significance.

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